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Please find below and/or attached an Office communication concerning this application or proceeding.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/586,483
Filing Date: January 30, 2007
Appellant(s): KLETHY ET AL.

Roland E. Long, Jr.
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 08 November 2010 appealing from the Office action mailed 18 March 2010.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims Pending: 1-6 and 8-13

Claims Rejected: 1-6 and 8-13

(4) Status of Amendments After Final

The examiner has no comment on the Appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the Appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the Appellant's brief.

(8) Evidence Relied Upon

6,447,705	FOWLER et al.	9-2002
5,080,851	FLONC et al.	1-1992
WO 94/26505 A1	SWIFT	11-1994
4,349,599	ADAMS	9-1982

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-4, 6, 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by FOWLER.

FOWLER teaches a process for the production of a fiber reinforced part adapted to be embedded in a matrix comprising the steps of providing a fiber-based material and spraying an adhesive resin thereon (column 1, lines 31-45; column 2, line 13-30 headlines 55-67 column 3, lines 1-17). As to the recitation of "preparing" a fiber-based material, such does not distinguish over FOWLER's teaching of moving the fiber-based material at a controlled rate while adhesive resin is sprayed thereon (column 2, lines 26-30). Alternatively, one of ordinary skill in the art would have readily appreciated that the non-woven fabric or mat suggested by FOWLER is provided by some type of manufacturing process, thus satisfying the claimed step of preparing. As to the limitation of being repositionable, it is clear from FOWLER that the adhesive resin has thermoplastic properties at the temperatures used for layup of a fiber-based material (column 2, lines 18-19, lines 34-38, and lines 65-67). Thermoplastic adhesive materials are inherently repositionable because the adhesive can be reheated to a molten state, allowing such repositioning.

Regarding the new limitation of depositing the glue on an exterior surface, FOWLER applies the glue by spraying. Clearly the glue is deposited on an exterior surface when applied by spraying.

The limitations of claims 2-4, 8 and 9 are clearly taught by FOWLER (column 2, lines 1-6 and lines 55-62; column 3, lines 11-17; Example 1). Regarding the limitation of avoiding pollution, FOWLER indicates that the resin is fully reactive (column 2, line 2)

and provides an example in which the resin is entirely comprised of reactive epoxy (Example 1). Accordingly it is clear that the resin is compatible with the matrix and will not give rise to pollution.

Regarding claim 6, a hot melt glue may comprise various compositions, but in its broadest sense requires no more than a thermoplastic material which becomes tacky upon heating and sets upon cooling. Since the resin of FOWLER clearly has these properties, it is considered to satisfy the claimed hot melt glue.

Claims 1, 4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by FLONC.

The claims are rejected here to further address the limitation of a repositionable adhesive.

FLONC teaches a method of making a fiber reinforced part wherein a prepared fibrous material is sprayed with a repositionable adhesive (column 3, lines 10-38). FLONC teaches that the use of a repositionable adhesive greatly facilitates the formation of complex composite parts (column 3, lines 37-38). As to the claimed step of preparing, one of ordinary skill in the art would have readily appreciated that the fibrous material of FLONC is provided by some type of manufacturing process, thereby satisfying the claimed preparing limitation.

As to application to an exterior surface, spraying clearly involves applying the glue to an exterior surface.

Regarding claim 4, FLONC indicates that the adhesive is fully compatible and reactive with the subsequently injected resin (column 2, lines 54-68). Accordingly it is clear that the resin is compatible with the matrix and will not give rise to pollution.

Claims 1-6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over FOWLER as applied to claims 1-4, 6, 8 and 9 above.

The claims are rejected here in the alternative to further address the claimed preparing step.

While FOWLER does not explicitly recite preparing the fiber-based material, the fibrous mat materials suggested by FOWLER are conventionally manufactured using a variety of well known processes, thus satisfying the claimed step of preparing. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide claimed step of preparing because one of ordinary skill in the art would have been motivated to provide the mat materials suggested by FOWLER in accordance with conventional methods.

Claims 1, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over FLONC as applied to claims 1, 4 and 5 above.

The claims are rejected here in the alternative to further address the claimed preparing step. While FLONC does not explicitly recite preparing the fiber-based material, the fibrous materials suggested by FLONC are conventionally manufactured using a variety of well known processes, thus satisfying the claimed step of preparing.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide claimed step of preparing because one of ordinary skill in the art would have been motivated to provide the fibrous materials suggested by FLONC in accordance with conventional methods.

Claims 2, 3, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over FLONC as applied to claims 1, 4 and 5 above, and further in view of FOWLER.

Regarding the limitations of claims 2 and 3, FOWLER suggests providing a suitable stock material by placing a removable separator and rolling up as claimed (column 2, lines 55-67). It is generally well known in the art that such separators are used in order to provide improved handling and also to prevent contamination of the fibrous material. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the limitations of claims 2 and 3 because one of ordinary skill in the art would have been motivated to provide a known suitable stock material for manufacturing composite parts in accordance with the teachings of FOWLER and to improve handling and prevent contamination in accordance with well known methods.

Claims 1, 4-6, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over SWIFT in view of ADAMS and FLONC.

SWIFT teaches a method of making a fiber reinforced part wherein a prepared fiber-based material is provided. In one embodiment, a heat activatable adhesive is

placed on an exterior surface of the fiber-based material prior to placement of the material in a mold (page 3). While SWIFT does not explicitly recite applying the adhesive to an exterior surface of the mat, such is considered inherent for the mat to be able to adhere to the mold as taught by SWIFT. While SWIFT does not explicitly recite preparing the fiber-based material, the fibrous mat materials suggested by SWIFT are conventionally manufactured using a variety of well-known processes, thus satisfying the claimed step of preparing. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the claimed step of preparing because one of ordinary skill in the art would have been motivated to provide the mat materials suggested by SWIFT in accordance with conventional methods.

While SWIFT indicates the use of a heat activated adhesive, SWIFT does not explicitly recite the use of a repositionable glue. It is well known in the art to use heat activated hot melt glues for positioning of fibrous materials during layup. For example, see ADAMS (Abstract; column 1, lines 43-52). It is noted that such adhesives are naturally repositionable because hot melt adhesives soften upon heating. As evidence for this assertion, see FLONC. FLONC indicates that thermoplastics, hot melts being thermoplastic materials, can be repositioned with heating (column 3, lines 28-30). FLONC further teaches that repositionable adhesives are desirable for facilitating the manufacture of complex composite parts (column 3, lines 37-38). One of ordinary skill in the art would have readily appreciated that a repositionable adhesive allows a misplaced fibrous mat to be repositioned without destroying, and therefore wasting, the misplaced mat. Accordingly, one of ordinary skill in the art would also have been

motivated to use a repositionable hot melt adhesive in order to achieve the above noted benefit of a repositionable adhesive. Suitable repositionable hot melts are well known. While the examiner acknowledges that FLONC seeks to use a solid uncatalyzed resin due to its advantages over hot melts, it is apparent from ADAMS that hot melts have been used in the art for positioning fibrous materials during layup and that such adhesives are suitable. It is also clear from FLONC that such adhesives are repositionable. Selection from among known suitable adhesives involves no more than expected and routine experimentation for one having ordinary skill in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a repositionable hot melt adhesive as the heat activated adhesive of SWIFT because one of ordinary skill in the art would have been motivated to use known suitable adhesives in accordance with ADAMS, such adhesives being repositionable as evidenced by FLONC. Alternatively, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a repositionable hot melt adhesive as the heat activated adhesive of SWIFT because one of ordinary skill in the air would have been motivated to select a suitable well known repositionable hot melt adhesive to achieve the above noted advantage of repositionable adhesives, hot melt adhesives being known suitable adhesives as evidenced by ADAMS.

Regarding claim 4, ADAMS teaches that the hot melt should be compatible with the matrix material for the motivation of avoiding adversely affecting the performance of the finished part (column 4, lines 43-46). Conventional EVA hot melts of the type suggested by ADAMS do not contain solvents and accordingly would not be expected to

give rise to pollution. SWIFT also desires an adhesive which is compatible with the matrix (page 3).

Regarding claim 5, applying hot melts by spraying is well known. See FLONC (column 1, lines 33-35). It is also noted that spraying would clearly involve applying the glue to an exterior surface of the fiber-based material. One of ordinary skill in the art would have been motivated to use any known suitable manner of applying the adhesive as a matter of routine design choice.

Claim 6 is satisfied for the reasons provided above.

Regarding claim 11, SWIFT clearly teaches the placing limitation (page 3). SWIFT also clearly teaches the injecting limitation (pages 2, 15 and 16). While SWIFT recites “introducing" resin, rather than injecting, the claimed term “injecting” does not appear to require more than introducing resin into the mold as taught by SWIFT. In any event, it is conventional in the art to suitably provide resin into a mold containing fibrous reinforcement by injection.

Claim 12 is satisfied for the reasons provided above.

Claims 2, 3, 8-10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over SWIFT in view of ADAMS and FLONC as applied to claims 1, 4-6, 11 and 12 above, and further in view of FOWLER.

Regarding the limitations of claims 2 and 3, FOWLER suggests providing a suitable stock material by placing a removable separator and rolling up as claimed (column 2, lines 55-67). It is generally well known in the art that such separators are

used in order to provide improved handling and also to prevent contamination of the fibrous material. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the limitations of claims 2 and 3 because one of ordinary skill in the art would have been motivated to provide a known suitable stock material for manufacturing composite parts in accordance with the teachings of FOWLER and to improve handling and prevent contamination in accordance with well known methods.

Regarding claim 10, the removing step is clearly necessary when using a removable separator in order to bond the fibrous mat to the mold as taught by SWIFT. Alternatively, the removal of such separators is conventional in the art because they are intended to provide improved handling and prevent contamination. Such separators, commonly called release films or liners, are not intended to become part of the finished part. Moreover, there is no indication in SWIFT of providing such release liners into the mold. For these reasons one of ordinary skill in the art would have readily appreciated that the release liners suggested by FOWLER would be removed prior to introducing the mat into the mold.

Claim 13 is satisfied for the reasons provided above.

(10) Response to Argument

Appellant argues FOWLER does not teach preparing a fiber-based material. In response, the examiner took two alternative positions with respect to this limitation. The examiner's first position was that “preparing” does not distinguish over FOWLER’s teaching of moving the fiber-based material at a controlled rate while adhesive resin is

sprayed thereon (FOWLER, column 2, lines 26-30). Alternatively, the examiner took the position that one of ordinary skill in the art would have readily appreciated that the non-woven fabric or mat suggested by FOWLER is implicitly provided by some type of manufacturing process, thus satisfying the claim step of preparing. Appellant has not provided any specific reasons as to why the limitation of preparing is not satisfied by one of these alternative positions taken by the examiner. Additionally, the preparing step was addressed under 35 USC 103 as being conventional in the art for manufacturing a fiber-based material of the type taught by FOWLER. Appellant has not provided any assertion that such manufacturing is not conventional.

Appellant argues that the nature of FOWLER's invention is different than the goals of Appellant's invention. In particular, Appellant notes that FOWLER is directed to producing a fiber-based material which is particularly suited to conforming to a mold. In contrast, Appellant's invention is directed to providing a fiber-based material which is removably attached to the mold. In response, the 35 USC 102 rejection using FOWLER has not been applied against those claims which require use of the adhesive to attach the fiber-based armature to a mold. The examiner's position is that this argument is not commensurate in scope with the claims against which FOWLER has been applied under 35 USC 102. In particular, there is no indication in claims 1-4, 6, 8 and 9 of attaching the fiber-based material to a mold.

Appellant argues FOWLER does not teach application of the glue to an exterior surface. In response, the examiner has noted that FOWLER applies the glue by spraying on an exterior surface of the fiber-based material (FOWLER, column 2, lines

13-30). The claims against which FOWLER has been applied under 35 USC 102 do not exclude subsequently placing a glue-coated fiber-based material against another layer such that the glue is no longer on an exterior surface.

Appellant argues FOWLER does not disclose a repositionable glue. In response, the examiner has taken the position that it is clear from FOWLER that the adhesive resin has thermoplastic properties at the temperatures used for layup of the fiber-based material. For example, FOWLER teaches that the glue acts as a thermoplastic (column 2, lines 18-19, 37 and 65-67). The examiner noted that thermoplastic adhesives are inherently repositionable because the adhesive can be reheated to a molten state, allowing such repositioning. Further, FOWLER teaches that the resin may be heated to bond the layers together (column 1, lines 31-32) and maybe reheated to re-melt the adhesive to allow repositioning (column 1, lines 34-40). Appellant has not provided any objective evidence to support the argument that FOWLER's thermoplastic adhesive is not repositionable. Moreover the hot melt glue preferred by Appellant is repositionable for the same reason. Hot melt glues have thermoplastic properties which allow them to be heated to a softened or molten state repeatedly.

Appellant makes similar arguments with respect to FLONC. In response, FLONC teaches providing a fibrous material which one of ordinary skill in the art would have understood to be implicitly prepared by some type of manufacturing process. Additionally, the preparing step was addressed under 35 USC 103 as being conventional in the art for manufacturing a fiber-based material of the type taught by FLONC. Appellant has not provided any assertion that such manufacturing is not

conventional. The claims against which FLONC has been applied under 35 USC 102 do not exclude subsequently placing a glue-coated fiber-based material against another layer such that the glue is no longer on an exterior surface. As noted by the examiner, FLONC suggests spraying the glue onto the fiber-based material, thus clearly satisfying the limitation of applying the glue to an exterior surface. FLONC is clearly directed to a repositionable glue. In particular, FLONC teaches that the bond releases and the adhesive may be subsequently reheated to reinitiate bonding (column 3, lines 33-38).

With respect to the 35 USC 103 rejection over FOWLER, Appellant argues that manufacturing the fiber-based material of FOWLER by a conventional method improperly modifies the approach of FOWLER. This argument is not persuasive because it is a mere assertion. Moreover, it is unclear why Appellant believes that manufacturing the material suggested by FOWLER by suitable conventional methods improperly modifies FOWLER. The remaining arguments with regard to the 35 USC 103 rejection over FOWLER are not persuasive for the reasons provided above.

The arguments against the 35 USC 103 rejection over FLONC are not persuasive for the reasons provided above.

With respect to the rejection using SWIFT as a primary reference, Appellant argues ADAMS does not teach a repositionable glue. The examiner respectfully disagrees. ADAMS suggests a hot melt adhesive (column 1, line 47). Such adhesives are considered repositionable because hot melt adhesives soften upon heating. FLONC was provided as evidence for this assertion. FLONC explains that hot melt and thermoplastic adhesives, generally, may be melted and cooled to “refreeze”, wherein a

new bond is formed. See also FLONC (column 3, lines 23-38 and 53-56). Appellant does not provide any objective evidence that such adhesives are not repositionable. To the contrary, Appellant also prefers the use of hot melt adhesives (Appellant's specification, page 4, lines 24-32). The property of being repositionable naturally flows from the use of such adhesives.

Appellant argues that hot melt adhesives form a bond when cooled and must be heated in order to accomplish repositioning. This argument is not persuasive for the reasons provided above. The claims are directed to the use of a repositionable adhesive. The fact that hot melt adhesives form a bond when they cool does not change the fact that hot melt adhesives are repositionable upon reheating to soften or melt the adhesive.

With respect to claim 11, Appellant argues there is no teaching to use a repositionable glue so as to provide a tack for the armature material within the mold. In response, the primary reference to SWIFT was relied upon for suggesting the use of a heat activated adhesive for tacking the fiber-based armature to a mold surface. ADAMS was relied upon for suggesting a heat activated hot melt glue as being a known suitable adhesive for positioning of fibrous materials during layup. As noted above, the property of being repositionable naturally flows from the use of a hot melt glue.

The arguments with respect to claim 12 are not persuasive for the reasons provided above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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